UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,050	09/29/2000	Scott L. Broutin	Broutin 31-35-50	2996

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DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L STREET NW
WASHINGTON, DC   20037-1526

EXAMINER
MONBLEAU, DAVIENNE N

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/672,050	BROUTIN ET AL.
	Examiner	Art Unit
	Davienne Monbleau	2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _29 September 2000_ .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-20_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-20_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Paul Ip

PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _9/29/00_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2_ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

The IDS filed on 4/9/01 has been acknowledged and a signed copy of the PTO-1449 is attached herein.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13, 14 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding Claims 13, 14 and 16, what is the curve data a curve of?

Further regarding Claim 14, where is the second tuning current signal applied? What is it tuning? Is it modifying the first tuning current?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Fee (U.S.

Patent No. 5,943,352). Regarding Claim 1, Fee discloses in Figure 1 a method of operating a

laser device comprising using a first feedback loop to tune said laser in response to a sensed

wavelength (120 – 110 – 104 – 112) and a second feedback loop to adjust a current applied to

said laser in response to a sensed amplitude (120 – 132 – 128 – 114).

Regarding Claim 2, Fee discloses in Figure 1 a temperature regulation signal (116).

Regarding Claim 19, Fee discloses in Figure 1 a method of stabilizing a laser device

comprising adjusting a tuning current (114) and adjusting a wavelength characteristic (104).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee

(U.S. Patent No. 5,943,352) as applied to Claims 1 and 2 above, and further in view of Johnson

(U.S. Patent No. 5,832,014). Regarding Claim 3, Fee teaches a third feedback loop (120 – 132 –

116), but does not teach that said third feedback loop adjusts a gain current applied to a gain

section. Johnson teaches in Figure 1 a stabilized laser device comprising a DBR laser (12) with a

gain section (14) and a tuning section (16). It would have been obvious to one of ordinary skill

in the art at the time of the invention to tune the gain section of a laser, as taught by Johnson, to

further stabilize the laser source.

Regarding Claim 4, Fee teaches in Figure 1 that a feedback loop may be in response to amplitude.

Regarding Claim 5, Fee teaches in Figure 1 that said feedback loops might operate simultaneously.

Regarding Claim 10, Johnson teaches in Figure 1 using a backface loop to compensate for aging, wherein said loop includes a backface monitor (20). (Also see abstract).

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee (U.S. Patent No. 5,943,352) as applied to Claim 2 above, and further in view of Kuo et al. (U.S. Patent No. 6,222,861). Regarding Clam 6, Fee teaches in Figure 1 a third feedback loop (120 – 132 – 116), but does not teach that said third feedback loop operates an amplifier. Kuo et al. teach in Figure 1 a laser wavelength-controlling device comprising an amplifier (118). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a feedback loop to operate an amplifier associated with said laser, as taught by Kuo et al., to control the output power of the device.

Regarding Claim 7, it is obvious that tuning the amplifier would be in response to an output power, since producing a specific output power is its function.

Regarding Claim 8, Fee teaches in Figure 1 that said feedback loops might operate simultaneously.

Regarding Claim 9, determining the transmission fraction data involves routine skill in the art.

Claims 11-17, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bielas (U.S. Patent No. 6,359,918) in view of Deacon (U.S. Patent No.

6,341,189). Regarding Claim 11, Bielas teaches in the abstract a method of tuning a light source comprising having a look-up table (data memory) that indicates the amount of current to be provided to a light source to maintain a specific wavelength and applying that current to said light source. Bielas does not teach that said data is representative of mode-hopping values. Deacon teaches in column 2 line 65 to column 3 line 7 the importance of tuning the modes to avoid mode-hopping behavior. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use data values corresponding to mode-hopping values in Bielas, to more accurately tune said laser device. Furthermore, the modulation current affects the frequency and hence the mode, so they are all interrelated.

Regarding Claim 15, Bielas teaches in the abstract a method of tuning the wavelength of a light source comprising having a look-up table (data memory) that indicates the amount of current to be provided to a light source to maintain a specific wavelength and applying that current to said light source. Bielas does not teach that said data is representative of mode-hopping values. Deacon teaches in column 2 line 6 to column 3 lines 7 the importance of tuning the modes to avoid mode-hopping behavior. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use data values corresponding to mode-hopping values in Bielas, to more accurately tune said laser device. Furthermore, the modulation current affects the frequency and hence the mode, so they are all interrelated.

Regarding Claims 12 and 17, Bielas teaches in Figure 3 adjusting the temperature of the light source in a separate feedback loop (120 – 52) and using a heater/cooler (44). It is known in the art that a TEC may be used.

Regarding Claims 13 and 16, determining the form of the data stored involves routine skill in the art.

Regarding Claim 14, having an additional tuning signal based on the look-up table is repetitious and involves routine skill in the art.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bielas (U.S. Patent No. 6,359,918) in view of Deacon (U.S. Patent No. 6,341,189) as applied to claim15 above, and further in view of Johnson (U.S. Patent No. 5,832,014). Bielas does not teach monitoring the amplitude at the backface of said laser. Johnson teaches in Figure 1 using a backface loop to monitor the power. It would have been obvious to one of ordinary skill in the art at the time of the invention monitor the backface amplitude of said laser in Bielas, as taught by Johnson, to compensate for aging (see Johnson abstract).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fee (U.S. Patent No. 5,943,352). Fee does not teach using a microprocessor to control the tuning steps. However, using a computer to control and monitor a laser device is standard in the art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sato et al. (U.S. Patent No. 5,778,017) teaches in Figure 4 a semiconductor laser-controlling device comprising three feedback loops. Glance et al. (U.S. Patent No. 5,509,023) teaches in Figure 2 laser tuning device comprising a DBR laser (51) and determining the characteristic curve of the laser to see if tuning is needed. Serizawa (U.S. Patent No. 6,212,210) teaches in Figure 7 a control apparatus for stabilizing optical wavelength output by a laser

module with multiple feedback loops. Pfaff (U.S. Patent No. 6,292,498) teaches in Figure 1 a

laser power stabilization device comprising a microprocessor (50) for controlling two feedback

loops (42 and 40).

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Davienne Monbleau whose telephone number is 703-306-5803.

The examiner can normally be reached on Mon-Fri 10:00 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-308-7722 for regular

communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-308-0956.

Davienne Monbleau

DNM
July 28, 2002

Paul Ip
PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800